WHAT IS CLAIMED IS:

1. A semiconductor device manufacturing method for forming first and second oxide films having different thicknesses on a semiconductor, comprising steps of:

forming an oxidation resistance film on a second oxide film formation area;

forming a first oxide film on a first oxide film formation area;

removing the oxidation resistance film; and

forming a second oxide film on a second oxide film formation area.

2. A semiconductor device manufacturing method according to claim 1,

wherein the first oxide film serves as a gate oxide film of a first transistor, and the second oxide film serves as a gate oxide films of a second transistor.

3. A semiconductor device manufacturing method according to claim 2,

wherein the first transistor is formed on the first oxide film, and the second transistor is formed on the second oxide film,

wherein the first oxide film is formed by performing thermal oxidization by using the oxidation resistant film as a mask,

wherein the second oxide film is formed by performing thermal oxidization.

4. A semiconductor device manufacturing method for forming first and second transistors on semiconductor first and second gate oxide films having different thickness, comprising steps of:

forming a device separation film on the semiconductor;

forming an oxide film on a first transistor formation area and a second transistor formation area by performing thermal oxidization using the device separation film as a mask;

forming an oxidation resistant film across the entire surface of the semiconductor;

removing the oxidation resistant film on the first transistor formation area by using a photoresist film as a mask;

removing the oxide film on the first transistor formation area;

forming a first oxide film by performing thermal oxidization by using the oxidation resistant film formed on the second transistor formation area as a mask;

removing the oxidation resistant film and the oxide film

on the second transistor formation area;

forming a second oxide film on the second transistor formation area by performing thermal oxidization.

5. A semiconductor device manufacturing method according to claim 4,

wherein a high-voltage MOS transistor is formed on the first gate oxide film thicker than the second gate oxide film,

wherein a normal-voltage MOS transistor is formed on the second gate oxide film.

6. A semiconductor device manufacturing method according to claim 4,

wherein the surface of the semiconductor is not exposed when the photoresist film is used as a mask.

7. A semiconductor device manufacturing method according to claim 4, wherein the step of forming a first transistor includes steps of:

forming an opposite conductive source/drain layer having a low concentration by an ion implantation of an opposite conductive impurity into the semiconductor of one conductive type;

forming an opposite conductive source/drain layer having

a high concentration in the opposite conductive source/drain layer having the low concentration by the ion implantation of an opposite conductive impurity into the semiconductor;

forming a semiconductor layer of one conductive type that serves as a channel and is located between the opposite conductive source/drain layers; and

forming a first gate electrode on the semiconductor via the first gate oxide film.

8. A semiconductor device manufacturing method according to claim 7,

wherein the opposite conductive source/drain layer having a low concentration is formed so that, at the least, the opposite conductive source/drain layer contacts the semiconductor layer that is formed below the gate electrode using an ion implantation method.

9. A semiconductor device manufacturing method according to claim 7,

wherein the opposite conductive source/drain layer having a low concentration is formed and extended at a small depth in the surface layer of the semiconductor, so that, at the least, the opposite conductive source/drain layer contacts the semiconductor layer that is formed below the gate electrode

using an ion implantation method.

10. A semiconductor device manufacturing method according to claim 4 further comprising a step of forming the first transistor after forming the first gate oxide film, including steps of:

forming an opposite conductive source/drain layer having a low concentration by an ion implantation of an opposite conductive impurity into the semiconductor of one conductive type;

forming an opposite conductive source/drain layer having a high concentration in the opposite conductive source/drain layer having the low concentration by the ion implantation of an opposite conductive impurity into the semiconductor; and

forming a first gate electrode on the semiconductor via the first gate oxide film.

11. A semiconductor device manufacturing method according to claim 4 further comprising a step of forming the first transistor after forming the first gate oxide film, including steps of:

forming an first impurity layers having a low concentration by an ion implantation of an opposite conductive impurity into

two portions of the semiconductor of one conductive type;

forming a second impurity layer having a low concentration by an ion implantation of an opposite conductive impurity to connect the first opposite conductive impurity layers;

forming a third impurity layer having a high concentration by an ion implantation of an opposite conductive impurity in the first opposite conductive impurity layer;

forming a fourth impurity layer by an ion implantation of an one conductive impurity to divide the second impurity layer;

forming a first gate electrode on the semiconductor including the fourth impurity layer via the first gate oxide film.

12. A semiconductor manufacturing method according to claim 11,

wherein the second impurity layer is thinner than the first impurity layer.